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ABSTRACT

These curriculum guidelines are intended to offer some quality control for: programs just beginning with their curriculum development and other academic considerations; programs already in existence which are struggling to upgrade the content of their programs; and agencies which are administratively and financially responsible for implementing and supporting information policy and information services development. The document begins by considering the nature and characteristics of the information societies that are emerging in the Asia and the Pacific Region. From this it is possible to identify the range of skills and competencies that will be required in the future. The present education and training arrangements within the Region are briefly reviewed, and weaknesses and deficiencies in the present system are identified. Finally, a draft curriculum is outlined that can be regarded as the starting point for discussion and development of syllabi that reflect the local conditions. (AEF)

A CURRICULUM FOR AN INFORMATION SOCIETY

Educating and Training Information Professionals in the Asia-Pacific Region

Supported by the
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Information and Informatics Unit
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for Asia and the Pacific
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PREFACE

These guidelines on a curriculum for information professionals are the result of a lengthy process of discussion and consideration within the framework of Unesco's ASTINFO Programme.

Initial discussions took place in Beijing in September 1995 at a workshop on information education strategies for the 21st century. To follow up the recommendations of this workshop, a meeting of experts and donors was convened in Manila in August 1996. This meeting identified the need for various actions, including the development of a draft curriculum that could assist those developing syllabuses at the various training institutions in the Asia-Pacific Region.

The framework for the draft curriculum was developed during a very productive meeting held at the Sukhothai Thammathirat Open University in March 1997 and attended by the following experts/specialists:

Utari Budihardjo	Indonesian Institute of Sciences, Indonesia
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The series of meetings was organised by Unesco's Principal Regional Office for Asia and the Pacific, jointly with the Institute of Scientific and Technological Information of China (ISTIC) in Beijing in September 1995, the University of the Philippines, Institute of Library and Information Science in Quezon City, Philippines in August 1996 and the Sukhothai Thammathirat Open University in Bangkok, Thailand in March 1997. Financial support for the meeting in Bangkok, Thailand was generously provided by the Japanese Ministry of Education, Science, Sports and Culture.

Following the meeting in Thailand a small group consisting of Maureen Henninger of the University of New South Wales, Edward Huck Tee Lim of Monash University, Nick Moore of the Policy Studies Institute and Robert D Stueart, then of the Asian Institute of Technology in Bangkok worked to produce these guidelines. Each contributed drafts that have been incorporated into this final text. The final editing was undertaken by Nick Moore.

Unesco acknowledges with grateful appreciation the contributions made by the above-mentioned experts/specialists and the Government of Japan, through the Ministry of Education, Science, Sports and Culture, for providing the funds for the printing, as well as those whose encouragement and support have inspired us to produce this publication.

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INTRODUCTION

The transition of society from an economy based primarily on manufacturing to one that is predominantly based on information and the application of information and communication technologies has profound implications for the education and training of information professionals.

Unesco has supported the development of these guidelines so that they can be used by all countries of the Asia-Pacific region to develop and enhance the educational programmes which prepare information professionals to meet the evolving requirements of the fast changing information-oriented societies that are developing in the Region.

The development of information societies represents an attempt to achieve economic and social advancement; to raise levels of education; strengthen community links and stimulate public participation in decision-making. To avoid widening the gap between the information rich and the information poor, developing countries must expand their information infrastructures and create systems and services to stimulate the use of information as an economic and social resource.

The rationale is that the new information technologies offer an opportunity for developing countries to make a major leap in development growth and poverty reduction, using the technology as a major factor to drive changes in the way many people communicate, learn, find, and use information. Although the initial focus has been on information technology, there is a growing awareness that it is necessary to understand information flows and requirements before the technological tools can be used effectively and efficiently. Further, there is a growing recognition that technology alone is not the answer, because abilities in its use must be balanced against a concern for people and their information needs.

Effective management of information requires professionals who understand information, how it is created, organized, sought and used by people in both their work lives and their personal lives. One of the most important activities in an information society is to maintain a cadre of qualified information personnel.

Education for librarianship and information work has focused upon recordable information and knowledge and the services and technologies to facilitate their management and use. Preparation for the profession has evolved, like most other true professions, from the apprenticeship mode to formal degree programmes in institutions of higher education. The revolution in computers, communications, and content at the end of the twentieth century has had a dramatic impact on the information profession, creating a situation in which skilled individuals are the key element in the total information system, forming a link through which society is held together and a culture is created and maintained.

Information access, made more convenient and speedier through technology, is indispensable to the development of human potential, the advancement of civilization, and the continuance of enlightened self-government. International information policies and global economic development on the one hand and political and societal demands on the other depend on, even demand, greater access to information in whatever form

and wherever located. This presents challenges for legal access, physical access, affordable access, intellectual access, and organized access.

This requires continuous broad-based planning and evaluation of the educational preparation of those entering the information profession and the continuous educational development of those already working in information services, libraries and archives. It has a major impact on: new and continuing curricula of degree and certificate programmes; the recruitment of qualified, research-oriented teaching staff; the placement of graduates into positions of importance; the education of users of information in many formats; and the continuing education and staff development of current professionals. It encourages an attitude of life-long learning.

Several groups of professionals - management information systems groups, computer scientists, expert systems personnel, and others - are contributing to the development of thinking about the education and training of information professionals, identifying educational goals and technological competencies needed for people to work in a variety of positions in an information continuum extending from the creation of information, through its description, organization and provision of access and ultimately to its dissemination and preservation.

The information profession requires individuals who can think conceptually and reason logically and who can use both that knowledge and advanced technologies to address the information needs of society. There must be an intellectual orientation to skills and methods, both technical and behavioral, before there can be an effective application of those skills. Without that a person is simply performing a set of routines, not truly participating as a professional.

The exploding mass of knowledge has made it impossible to continue the idea of learning things or memorizing them in anticipation of possible future use. Rather, learning how to find information efficiently and effectively when the time comes is now the goal. Students must be independent learners, thinking about issues, analysing problems, and prepared to put forth convincing arguments to support conclusions.

The core of the curriculum for information professionals provides for the study of the theory, principles, and practices that are required for the provision of good information services. It addresses:

- The nature of information
- How it is used and managed
- Systems, mechanisms, institutions, and tools to facilitate that use
- All of those factors and facets placed in the larger social, economic, political and technological context of society

The appropriate balance between theory and practice, between specialization and general preparation, between basic and applied research are issues to be considered in designing effective education and training programmes.

Within that context, the curriculum can be conceived in terms of:

- **Knowledge:** areas relating to philosophy, such as the foundation of information in society; environmental and contextual knowledge; and management knowledge.

- **Skills:** those components relating to communications; interpersonal skills; and technological skills, such as programming, online searching, database management.

- **Tools:** those units relating to both quantitative and analytical measures (systems analysis, research methods, descriptive statistics, logic) and bibliographical or organizational ones (bibliographic control, abstracting and indexing, data structures, and collection development)

Cognate areas are also very important to the education of information professionals since the field is "the science that investigates the properties and behaviour of information, the forces governing the flow of information, and the means of processing information for optimum accessibility and usability. The field is derived from or related to mathematics, logic, linguistics, psychology, computer technology, operations research, the graphic arts, communications, management, and other fields." [1]

Educators are in a key position to act as change agents, to initiate curricula and design programmes to meet future needs of information professionals, and to build a commitment to change. An educated, informed group of teaching staff is the most important single element in a programme's ability to deliver quality education. The quality of a programme is reflected in the consulting, writing, speaking, research and other professional activities undertaken by the teaching staff.

Educators are responsible not only for the transmission of knowledge but also for the creation of new knowledge. The qualifications of each faculty member should include competence in designated teaching areas, technological awareness, and effectiveness in teaching.

Distributed learning or distance education is an important consideration both for programmes preparing new professionals as well as continuing education and staff development of experienced professionals. It requires a different mind-set, because distributed learning has a user-centred philosophy, relying on the initiative of the learner. Courses, short programmes and other educational offerings can now be delivered using modern information technology. This is particularly important for professionals already working.

1 R Taylor (1997) *Libraries in post-industrial society*. Oryx Press, Phoenix, AZ

These curriculum guidelines are intended to offer some quality control for: programmes just beginning with their curriculum development and other academic considerations; programmes already in existence which are struggling to upgrade the content of their programs; and agencies which are administratively and financially responsible for implementing and supporting information policy and information services development.

We begin by considering the nature and characteristics of the information societies that are emerging in the Region. From this it is possible to identify the range of skills and competencies that will be required in the future. We review briefly the present education and training arrangements within the Region, identifying weaknesses and deficiencies in the present system.

Finally we set out a draft curriculum. We must stress that this represents the beginning not the end. What we put forward here should be regarded as the starting point for discussion and for the development of syllabuses that reflect the local conditions. All education and training programmes should be devised so that they meet a particular set of requirements. These will be determined by the nature of the society itself, the state of development of information services and the general level of education among existing information professionals.

INFORMATION SOCIETIES

As we come to the end of the 20th Century, societies throughout the world are changing. Nowhere is this more apparent than in the Asia-Pacific Region. In nearly all countries within the Region, information now plays an increasingly important part in economic, social, cultural and political life. We are seeing the emergence of information societies.

These information societies have three main characteristics. First, information is used as an economic resource. Organisations make greater use of information to increase their efficiency, to stimulate innovation and to increase their effectiveness and competitive position, often through improvements in the quality of the goods and services that they produce. There is also a trend towards the development of more information-intensive organisations that add greater amounts of value and thus benefit a country's overall economy.

Secondly, it is possible to identify greater use of information among the general public. People use information more intensively in their activities as consumers: to inform their choices between different products; to explore their entitlements to public services, and to take greater control over their own lives. They also use information as citizens to exercise their civil rights and responsibilities. In addition, information systems are being developed that will greatly extend public access to educational and cultural provision.

The third characteristic is the development of an information sector within the economy. The function of this information sector is to satisfy the general demand for information facilities and services.

A significant part of the sector is concerned with the technological infrastructure: the networks of telecommunications and computers. Increasingly, however, it is being recognised that it is also necessary to develop the industry that generates the information that flows around the networks: the information content providers. In nearly all developed countries this information sector is growing much faster than the overall economy. This reflects a global trend. The International Telecommunications Union estimates, for example, that in 1994 the global information sector grew by over five per cent while the overall world economy grew by less than three per cent.

The creation of these information societies is taking place within a much greater, international, process of change. Partly, this is because the information systems that are developing are global, or at least international in their reach: satellite broadcasting systems do not recognise national boundaries; telecommunications networks provide connections between countries and continents, while the Internet is perhaps the ultimate example of a global system.

All countries in the Asia-Pacific Region are becoming more aware of the need to make use of information to improve their relative competitiveness or, at least, to retain their position in an increasingly competitive global market. So, countries are actively developing their local information industries so that they can participate in the growing international market for information.

But it goes beyond international trade. The development of information societies represents a series of attempts to achieve more general economic and social advance and, in particular, to transform national and regional economies so that they move away from a reliance on primary and secondary industries and exploit more fully the opportunities for higher valued-added industrial and commercial operations. This implies the creation of economic systems that encourage the formation and development of information-intensive companies. And the creation of information systems that will raise levels of education, strengthen community links and stimulate public participation in decision-making.

There is, however, a concern that the shift towards information societies will increase the gap between the developed and the developing countries within the Region. To counter this bodies like the World Bank with its InfoDev Fund have identified the need to channel capital investment funds to developing countries to enable them to expand their information infrastructures and to create systems and services that will stimulate the use of information as an economic and social resource. The rationale for the World Bank initiative is that the new information technologies represent an opportunity for developing countries to make major leaps forward in development growth and poverty reduction. And, less altruistically, the future of developed economies in Europe and North America will depend on a healthy global economy.

ORIGINS AND CAUSES

The origins and causes of these attempts to develop information societies lie in two, inter-related, developments: long-term economic development and technological change.

In the long-term, the structure of economies changes. Most begin with a reliance on the primary sector: agriculture, forestry and mining. Gradually, in most economies, the secondary sector - manufacturing industry - becomes more important, contributing a larger proportion of gross domestic product and, usually, also contributing to exports. In many countries the rise of the secondary sector is followed by an expansion of the tertiary sector. The commercial and service sector grows and makes a greater contribution to the national income.

At each stage in this progression, the productivity of labour grows, more value is added by each worker, capital investment increases and the economy expands. Just as significant, the relative importance of the different sectors of the economy changes.

These changes have been taking place throughout the world for the last thousand years. What has been happening over the last fifty years, however, as economists like Fritz Machlup and Marc Uri Porat have shown, is that the tertiary, or service sector becomes more and more concerned with processing information in different forms. Many of the countries in the Asia-Pacific Region have economies with well-developed tertiary sectors. And the others are fast catching up.

Technological change is a major contributor to this process of economic development. Certainly, in recent years, the rapid development of information and communications

technology has vastly increased our capacity to process information and, in so doing, it has undoubtedly accelerated the growth in the information-intensive tertiary sector.

The structural changes that are taking place are having an enormous effect on the patterns of employment, bringing with them displacement, unemployment and social disruption.

Throughout the Region there has been a steady shift in the pattern of employment: from the primary to the secondary sector, and again from the secondary to the tertiary. In each case, however, capital investment has meant that, even though the labour-input has declined, output has grown.

In the primary and secondary sectors, labour was displaced by machines. It is now possible to see the same thing happening in the emerging information societies. Large numbers of clerical and administrative workers are losing their jobs as their work is automated. The introduction of electronic financial transactions, for example, is causing substantial reductions in the numbers of people employed in the banking sector. In some cases, this displacement of labour simply serves to reduce the impact of shortages elsewhere in the economy - it is likely that many of these people will find other jobs in new information-intensive industries as the structure of the economy evolves - but for many there will be a very uncomfortable period of disruption.

As well as structural change, there is a great deal of change in the nature of employment. Many jobs are quite simply becoming more information-intensive - they require workers to spend a greater proportion of their day processing information and working with information technology.

This information-intensive way of working brings both benefits and disadvantages. Working arrangements become more flexible - for many it is even possible to spend part of the time working at home. But the price of this is a considerable blurring of the boundary between work and home life. Employers also want more flexibility and greater power to hire and fire their employees as the nature of their business changes. This is introducing a much higher level of insecurity into the labour market. The technology makes it easier for staff to keep in contact with their workplace - notably through mobile communications - but many are becoming concerned about the level of stress that comes with never being offline. It will take a long time for us all to adjust to the changes that are taking place in the way we work.

It is, therefore, not surprising that much of the debate on employment policy within information societies is concerned with finding the right balance between flexible labour markets and the protection of workers' rights.

THE INFORMATION INDUSTRIES

A defining characteristic of an information society is an emerging information industry. A few countries rely on external organisations to supply all the information systems and services that are required. But such cases are rare. Most developed countries are

actively encouraging the growth of an indigenous information industry to meet the country's needs and, in many cases, to enable the country to participate in the rapidly expanding international information market.

It is useful, when considering the development of the information sector, to divide it into three distinct segments: one concerned with the creation of information - the content sector; one concerned with the delivery of the information and the other concerned with information processing.

The information content industry

The information content segment consists of the organisations in both the public and private sectors that produce and develop intellectual property. The information is originated by writers, composers, artists and photographers, assisted by editors, film makers, television producers, animators and a host of allied occupations.

These information creators sell their work to publishers, broadcasters, distributors and production companies that take the raw intellectual property and process it in different ways so that it can be distributed and sold to the information consumers.

In the past, the work of creation and publication took place in quite separate organisations. Authors worked with publishers and rarely had much contact with video- or film-makers. But now that it is possible to present the different types of information in a common digital format, the boundaries are breaking down and it is possible to identify multimedia companies that bring written, audio and visual material together into the same information package.

In addition to this genuinely creative information, there is a large part of the information content segment that is concerned not so much with the creation as with the compilation of information: the compilers of reference works, databases, statistical series and 'real-time' information services that supply constant flows of information about things like share and commodity prices. These information providers account for a very significant proportion of the total revenues of the information content sector. It is here that the public sector plays a key role. Governments of all kinds are major collectors and compilers of information. They hold, use and, in some cases, publish, large amounts of information. In recent years a number of countries have encouraged the private sector information providers to exploit this information partly to stimulate the dissemination of the information itself but also as a means of supporting the development of the information sector.

Linking all this together is an important sub-set of the information content segment that is concerned with the management of, and trading in intellectual property rights.

In comparison with Europe and North America, the information content sector in the Asia-Pacific Region is at an early stage of development. It is a region that represents the third biggest market for information outside North America and Europe, yet much of the demand for information is met by companies based out side the Region. It is a

net importer of information. There are, however, signs that this is changing. The Japanese database industry is strong and growing rapidly; the government in China is beginning to exploit its information assets more vigorously in the global market; Singapore and Hong Kong are developing thriving information service companies and there is considerable inward investment by North American and European companies. There is, however, a growing recognition that there is not a single, homogenous industry serving a single market, rather it is a series of linguistically and culturally defined industries and markets.

The information delivery industry

The second part of the information sector is concerned with the creation and management of the communication and dissemination networks through which we communicate information. This includes the telecommunications companies, many of which are still state-owned enterprises; companies that provide cable television networks; satellite broadcasters, cellular telecommunications, radio and television.

Allied to these organisations is another set that are concerned with the use of these and other channels to distribute the information content. This is where we find the booksellers, libraries, broadcasting companies and the providers of what are known as value-added network services - these are services provided through the telecommunications networks, but which offer more than basic voice telephony: anything from information about the weather to traffic news.

Again, the Region's information delivery industry relatively undeveloped compared to Europe and North America, although it is growing and developing very quickly.

The information processing industry

This segment of the information industry can be conveniently divided into two parts: the producers of hardware and the producers of software.

The hardware producers design, develop, manufacture and market the computers, telecommunications equipment and consumer electronics. They tend to be concentrated in the USA and in East Asia. They deal in very high volumes and are operating in a market where unit prices have been falling steadily for over twenty years. There have been noticeable shifts in the geographical distribution of these industries within the Region as manufacturing companies re-locate their operations to countries with lower labour costs and as national economies strive to add more value per worker by moving up from assembly into product design and development.

The software producers provide us with operating systems like UNIX, DOS or Windows. They also produce applications packages like spreadsheets and wordprocessing systems. And there is a further, and growing, element that is concerned with the creation of computer games and here the global market is led by Japanese companies. In recent years most of the software industry has been concerned with producing software for mass consumption and the USA still leads the way. There is still, however, a significant

element that produces custom-built software systems for use in individual organisations and countries like India are beginning to develop a very important local software industry established on the basis of high levels of skills allied to relatively low labour costs.

Convergence and consolidation

The three segments of the information industry - content, delivery and processing - are about the same size in Europe although in the USA the information content segment is estimated to be larger - as can be seen in Table 1.

Table 1 The size of the information industry in Europe and the USA (All figures are for 1994 and are in US$billion)

Information industry segment	European Union	USA
Information content	186	255
Information delivery	165	160
Information processing	193	151
Total	544	566

Source: European Commission.
Note: Size is measured in terms of sales within the European Union and the USA.

While the lack of any reliable statistics make it difficult to compare the position in the Asia-Pacific Region, it does appear that the information content segment is growing in value and economic importance just as it is in both Europe and North America. One way to look at this is to consider the value chain, or where value is added in the process of bringing an information product to the market. Work by the European Commission suggests that the value chain for information products looks like Figure 1.

Figure 1 The information value chain

Value-adding activity	Creation, development and packaging	Distribution	User access
Share of value added	48 per cent and growing	38 per cent and declining	14 per cent and stable

Source: The European Commission.

The International Telecommunications Union, in a similar analysis, estimates that the value added by the telecommunications companies at the distribution stage is as low as 20 per cent.

The message in this for the Asia-Pacific Region is clear. The key sector to develop is the one concerned with the creation, development and packaging of information. We are likely to see, therefore, a significant growth in this area in the years to come.

The growing appreciation of the significance of the information content segment also accounts for much of the re-structuring that is taking place in the information industries. The 1990s have seen a dramatic series of mergers, acquisitions and joint ventures as companies try to re-position themselves along the value chain. With this has come the acquisition of many Asia-Pacific companies by companies based in Europe and North America.

It is likely that this flurry of activity will continue for several years until a new pattern of industrial ownership emerges. What does seem certain is that the holders of intellectual property rights will be in a stronger and stronger position.

INFORMATION AS AN ORGANISATIONAL RESOURCE

Information is now seen as a valuable resource within many organisations. A resource that, if it is properly managed and used, can stimulate innovation, speed product development, raise levels of productivity, ensure consistent standards of quality and, through all of these means, raise the relative level of competitiveness.

The private sector

Much of the interest in the use of information as a resource is concentrated on the private sector where productivity and competitiveness can determine the success or failure of individual companies. It can also determine the overall health of the economy.

In manufacturing industry information can make a contribution to economic success in a number of different ways. It is an important element in the process of research and innovation. For many years companies have recognised the need for their research and development departments to have access to the most up-to-date information.

Good products alone, however, will not ensure a company's success. They need to be developed and designed to meet the requirements of the market. This implies a high level of market intelligence and an understanding of the ways in which consumers respond to different products. The market research industry has grown dramatically in recent years in an attempt to meet these needs.

Information also makes a significant contribution to the management of manufacturing processes. Indeed, many of the modern approaches to manufacturing - just-in-time production, for example - depend on the processing and communication of substantial flows of information.

All this calls for a strategic approach to the management of information in manufacturing industry and many have argued that to achieve significant productivity gains in industries like car manufacturing, it is necessary first to develop a radically different approach to the management of information.

The impact of information on the commercial part of the private sector is possibly even greater than in manufacturing. Commerce generates large quantities of clerical and administrative work. And it is this work that is most open to automation. The introduction of automated reservation systems revolutionised the airline industry and, in doing so, created a set of global systems that now make it easy and very cheap to book air travel, car hire and hotel accommodation. Similarly, the electronic transfer of money is transforming retailing and the banking system. In both these cases, the introduction of automated systems has dramatically reduced costs and resulted in the loss of many thousands of clerical and administrative jobs.

In retailing, information systems are being used to improve stock control. Information is collected when goods are sold, the shop's inventory is automatically up-dated and, when the level of stock becomes low, additional stocks can be ordered from the suppliers. Some highly efficient retailers have developed these stock control systems to the point where they no longer need any warehouses - stock is delivered direct from the suppliers to the shops where it is sold.

Information systems are also making it much easier for companies to balance supply and demand. Ticketing systems on airlines, for example, monitor the rate at which seats are sold on each flight and adjust the number of discounted tickets that are made available to travel agents. Similarly many car hire firms no longer have published hire rates - the rate is constantly adjusted to ensure that the supply of cars balances the demand at all times.

In other areas, decision support systems are used to reduce risk. An application for a personal loan used to be considered by a middle manager in a bank or financial institution who would consider a range of factors before deciding whether or not to lend the money. Now that is all done automatically with computers building up what is known as a credit score. Applicants who score above a certain level, receive the loan. Systems also exist to monitor the use made of credit cards, alerting the credit card company to any significant changes in the behaviour of the card holder. By adopting these systems, financial institutions are greatly reducing the level of risk in their business.

Extensive use is made of information in marketing. Shops and supermarkets provide customers with discount cards or their own credit cards. This enables the retailer to monitor the customer's shopping habits and to build this into their marketing strategy. Some use the information to promote different products to particular customers.

The long-term success of many commercial organisations in the Region will be determined by their capacity to use and manage information to reduce costs; to extend their range of services; to reduce risk and to become more sensitive to customer demands.

Information is even making an impact on the traditional professions like law and medicine. Lawyers now have access to sophisticated legal information systems and they make extensive use of computers to monitor their work and to account for their time. Similarly doctors are now able to keep much closer track of their patients through sophisticated records management systems.

The public sector

Information can make a similar impact on the public sector. Public authorities at national and local levels are beginning to find that information can change the way they work quite dramatically. At one level it enables them to improve their general efficiency in ways that are similar to those used in commercial organisations: through the automation of clerical and administrative tasks; through the use of decision-support systems and through the development of electronic payment systems. Some are also beginning to develop electronic transactions services so that people can access the authorities, filling in forms and processing claims electronically.

We have yet to see the full impact on democracy and participation. There have been a number of experiments in the USA, where the local authority has set up electronic voting systems and explored the scope for public participation in decision-making. The results are inconclusive. It seems to be difficult to retain sufficient levels of public interest in the issues and politicians are understandably wary about opening the door to a form of participation that might end up by undermining the very democratic institutions that it sought originally to support.

There does, however, seem to be greater potential for using cable television to generate more interest and participation in local community affairs. It is now possible to allocate broadcasting channels for use by quite small communities and, in this way, it becomes possible to broadcast things like school governors' meetings live. Where this has been done there has been a surprisingly high level of interest among members of the public.

One of the features of information societies is the emphasis that is given to education. A recent report on the information society in Europe has emphasised the need to create a learning society and this is a recurring theme in many of the information policies within the Region. Certainly the technology has revolutionised our ability to deliver education in ways that were not previously possible. Already a wide range of training courses are available in the form of multi-media compact discs. And schools and universities are experimenting with the electronic delivery of distance learning courses. Such developments are likely to make a real impact on rural areas, very specialised courses and adult learners.

Health is the other public service that is likely to be greatly affected by information. Indeed, advances in the provision of health information are likely to raise the level of public health considerably. They will do so in three ways. First, doctors and other medical staff will simply be better informed. They will know more about their patients and they will have ready access to much more information about diseases and their treatments. They will also be able to gain access to medical specialists in other towns and other countries, consulting them on unusual cases.

Secondly there will be much better systems for epidemiology - the science of tracking diseases - so that we will be able to trace many of the environmental causes of disease more easily. Improved medical records will also make it much easy to track and monitor patients, altering them, for example, to new treatments as they become available.

Finally, improved consumer health information will enable us all to take better care of our own health. There is now much more information available on the causes of heart diseases and illness like lung cancer. This, allied to better provision of information about the content of foods, the tar levels in cigarettes and pollution levels enables us to adjust our patterns of behaviour so that we avoid many of the things that will make us ill. This alone could be the next major break-through in public health care.

The evolving demand of information services

All these developments are generating new demands for information in organisations. In most organisations, whether in the public or the private sector, the initial focus tends to be on information technology. And in many organisations this has resulted in a great deal of expenditure for only modest results. There is now a growing awareness that before investing in the technology it is first necessary to understand information flows and requirements.

There is also a growing recognition that technology alone is seldom the answer. Effective management of information calls for people who understand information, how it can be collected, how it can be processed and used for different purposes. This, in many organisations is leading to the re-definition of company libraries and information services, many of which were originally established to serve a research and development department. It is also causing a re-assessment of the organisation's archives and records management functions.

INFORMATION AND CITIZENSHIP

As well as using information when we are at work or studying, we all use information as part of our daily lives. We use information as consumers - of products and services, whether provided by the private or the public sector. We also use information in our roles as citizens. Here we use information when we are exercising our rights and responsibilities. There is a growing awareness of the need to develop our consumer and citizenship information services.

Consumer information

At a very basic level, people need information so that they can choose which products and services they consume. Market economies only function effectively if consumers are well informed. People need to know about the full range of products and services are available so that they can allocate their resources wisely.

Many governments have begun to introduce the consumer principle into the provision of public services. Schools, for example, are required to publish their examination results so that parents can make an informed choice of school for their children.

As well as simple consumer choice, people need information so that they can exercise their rights and entitlements to services. This is particularly important in countries that have well-developed welfare systems. In such cases individuals are entitled to a wide range of benefits and, consequently, need to be well informed if they to be able to claim what is due to them.

Information can also help people to take charge of their own lives. People are now better informed about what makes them ill and what can keep them healthy. Information of this kind helps us all take more control over our lives.

In many countries people are considered to be more than just passive consumers of goods and services produced by the public or private sector. Consumer groups have developed the notion of active consumption where consumers hold producers and service providers to account for their products. Information plays an important part in this. Whether it is a company being forced to publish information about their pollution record, or nutritional information on the side of a tub of margarine, it is all information that helps to make producers accountable to the people who consume their products.

Citizens' access to information

As citizens we possess a range of rights, although the range considerably varies from society to society. We have basic human rights - to be treated as a human being with intrinsic worth. And in many other societies we have civil rights - freedom of speech, assembly, religion and the right to justice - and political rights - the right to vote. We also have a range of social rights - usually interpreted as the right to a minimum standard of life. Increasingly we can claim a range of intellectual rights including copyright, data protection, privacy and rights of access to official information.

But there is a great deal of difference between having a right and being able to exercise it. Poorly informed people are often denied their rights because they lack the power to exercise them. Because of this, some have argued that we can define a further set of rights - the right to information and advice. If we had this additional right, then we would be in a much stronger position to exercise all the other rights.

This is the rationale that underlies the concept of freedom of information. Freedom of information legislation gives citizens the right of access to information about what is happening in government so that they can make better judgements about those who govern them. This principle of freedom of information is deeply embedded in some national constitutions, in other cases the principle has been adopted more recently, in yet others it is still a matter of considerable debate.

The need for citizenship information, however, extends beyond a right of access to government information. It should include access to all the information that people

need to exercise their rights as citizens. They should not, for example, be denied access to information about the legal and justice system because if they are, then they cannot fully exercise their legal rights. And this right of access should not be dependent on an individual's ability to pay, their language ability, level of literacy or on any of the other factors that can impair an individual's ability to obtain information.

The problems of access

The list of factors that can reduce an individual's access to information is a long one. And there is a growing concern that, in creating our information societies, we may be creating a further division in society - the divide between those who have access to information and the ability to use it and those who do not. More particularly, the concern is that such a division would deepen other divisions that exist in most societies - the division between rich and poor; between the educated and the inarticulate; between the majority and minority ethnic, linguistic or religious groups; and between the physically and mentally able and disabled people.

All these factors place barriers in the way of gaining access to information and slowly, people are beginning to recognise the need to develop services that will overcome these barriers. In some cases we need to raise basic levels of literacy and numeracy and this can only be tackled successfully through educational programmes. In other cases what is needed is the provision of information and advice services that meet the particular needs of specific groups within the community.

Public libraries have traditionally provided access to information for a wide range of people and, in many countries, efforts have been made to meet the needs of particular minority groups. But general information services alone are insufficient. Disabled people, for example, have particular needs that require special provision. First, they need information on particular subjects that relate to their disability. Secondly they have particular access problems that call for special provision. Thirdly, many would argue that, for the information and advice to be fully effective, it should be delivered by someone who has themselves personal experience of what it is to be disabled. These arguments could be applied to almost any minority group.

We need also to recognise that information alone is not enough. Life is increasingly complex. None of us can expect to be able to understand fully all the information that we need to manage our lives in these complex societies. We need to be able to turn to specialist advisers who can interpret information and relate it to our individual circumstances. This is not a new idea - people who could afford it have always turned to lawyers, accountants and other advisers to help them through the intricacies of life. Many developed countries now recognise that they need to make access to advice accessible to everyone.

The problem, of course, is one of cost. Acceptance of the argument for a public information and advice service implies also acceptance of the principle of information being free at the point of use. And that implies public expenditure at a time when, in

many countries, there is pressure to reduce expenditure on public libraries and information services.

It is possible, however, to make a strong case of public information. The citizenship argument suggests that access to information is a right to which we are entitled like justice, and that, in common with other public services, it should be provided free. The efficiency argument reasons simply that society functions better when everyone is well informed. The equity argument is based on the fact that an effective public information and advice service is unlikely ever to be fully provided by the private sector and, because a significant majority lack the resources to buy it, it should be provided at public cost.

All these arguments point to the fact that a basic element in an information society should be the provision of a comprehensive public information and advice service.

REGIONAL DIVERSITY

Clearly there are great differences between the countries within the Region. Some, like Australia, Japan and Singapore have highly developed library and information systems and, by any measure, would be classified as information-intensive societies. Others, for a variety of reasons, are at a much less developed stage. What is apparent, however, is that just about all countries within the Region are striving to develop into information societies.

The question is not will the developments take place? Rather it is a question of how quickly will the development proceed?

THE FUTURE DEMAND FOR INFORMATION SKILLS

What skills will we need to cope with these developments? We are beginning to see a marked change in the culture of information use as technology pushes us towards an information-intensive society. Up to the end of the 1980s relatively few people actively used information as part of their work or their daily lives. And mostly, they found it quite difficult to do so. In such circumstances, information professionals exercised a fairly basic set of craft skills which had developed over the previous thirty years.

Now the situation has begun to change radically. More and more people are using information in their work and at home. There is more information around and it is more highly processed than ever before. User-friendly systems enable users to retrieve the information they need. And there is an expanding information industry promoting a culture of intensive information use.

Information is becoming embedded in our culture, shaping the way in which we work, play and enrich ourselves. In such circumstances, what need is there for information professionals when everyone becomes more professional in their use of information?

Without doubt, the demand for information professionals will continue to expand. But the skills and abilities required by those professionals will be different from what we have known before. Users of information will be able to meet many of their requirements for information themselves. They will look to information professionals to provide more sophisticated services, satisfying demands that they are unable, or unwilling to satisfy for themselves. In such circumstances, information professionals will be called upon to offer a higher level of service to more demanding clients.

We will see, I believe, the emergence of four complementary groups of information professionals: *Creators*, *Collectors*, *Communicators* and *Consolidators*. In many organisations, however, the volume of information work will not be sufficient to enable information professionals to specialise in this way and we will see posts that combine two or more of the types of skill.

CREATORS

The creators will be the ones who can develop and produce information products and services. They will need to be able to understand the technology to the extent that they can exploit its potential. They will need to be able to make information systems work and, above all, to make them work in the easiest possible way. It should be as easy to switch from using one information system to another as it is to switch from driving one car to another.

More and more organisations are developing new information services and activities to run alongside their other products - one only has to look at range of organisations that feel it necessary to have a presence on the World Wide Web; and at the variable quality of many of these Web sites. We currently have a mushrooming of information-creation tools, from desk-top publishing to electronic translation. But we are only at the beginning of the process of automating the creation of information. For the foreseeable future, there will be a pressing need for people who understand information and how it to be involved in the design of these information services.

A critical set of skills will be concerned with navigation. As more and more information becomes available, so a higher premium will be paid for people who are able to develop maps and the other tools needed to find one's way around the system.

The creators will also need to be skilled in the complex set of processes associated with information design. They will need to understand how language works and how to use layout, typography and design principles to achieve the desired impac. They will need to go beyond this and be able to analyse and design the structure of information; this requires an understanding of information seeking-behaviour and user needs.

During the 1980s we made great strides in advancing our understanding of how to design effective printed information. We now face the challenge of developing a comparable depth of understanding in relation to electronic information.

COLLECTORS

Services like the Internet are extending dramatically our ability to access material. But someone, somewhere needs to build up collections of information that we can consult.

This is the traditional role of librarians, archivists and records managers. Their aim is to build up collections of information in anticipation of some future use. Collectors try to satisfy the current needs of their users but they are also trying to forecast the needs that will develop in the future and to collect the material that will satisfy that future demand. Information collections are not static; without constant maintenance their quality declines as the information grows older and new material is missed. The few collections of old, scholarly material are the exceptions that prove the general rule.

Collectors need, above all, to understand the needs of their users. They must be fully aware of the overall aim and objectives of the organisations they serve and they must appreciate what users want from the collection. This often means distinguishing between expressed wants or demands and more basic, but often unstated, information needs. To complicate matters further, collectors need to be able to forecast how these requirements will change in the future so that they can have the material ready for use.

Clearly, the collectors need to be aware of the full range of material that is available for collection. For conventionally published material this is relatively easy but as information technology makes it easier and easier to produce information , so it becomes more difficult to keep track of the items that appear outside the formal publishing system. Once aware of the available material, the collectors need to be able to select the items that will make the greatest contribution to the collection - the items that will add most value and that will retain their value longest. They also need to make judgement about when it is appropriate to buy an item and when to rely on inter-library loan and document delivery systems. The overall value of the collection is determined by the quality of all these selection decisions.

Having selected and acquired the material, the next task is to organise it and make it accessible for the users. Classification and cataloguing are skills that are often under-valued, as is evident with much of the design of Web pages and documents, yet they provide the key to a collection of information.

Information collections need constant revision and maintenance. The value of nearly all information materials declines over time. Some major national and international collections derive their strength from the fact that they retain a copy of everything but for most collections it is necessary to revise constantly, weeding out material that is no longer valuable to make room for new information.

COMMUNICATORS

Information comes best when wrapped in a person. Those who claim that we will satisfy all our information needs through the networks misunderstand the nature of information needs and information-seeking behaviour. True, we will make greater and greater use of electronic information. But, as our use of information becomes more sophisticated, we will need recourse to information specialists who can help us find the answer to our problems by tailoring the information provided to our particular circumstances.

Such information professionals will work in a wide range of situations such as small-firms advisory centres; citizens advice bureaux, health information services, financial advisory services, travel agencies and even management consultancies, which in one sense are simply a rarefied sub-set of the information-communicator group.

The communicators will need a high level of inter-personal skills. They will need to be able to modify and adjust their service to suit the personality characteristics of the person with whom they are communicating.

They will need to be able to analyse people's requirements very quickly, distinguishing between actual needs and expressed demands for information. They will have to analyse and select the information that is available, using that which most directly meets the user's requirements. They also need to be able to find and retrieve the required information quickly and efficiently. This usually means that they have to be very good at organising their own information resources.

Consider what happens when someone goes into a travel agency wanting to find the holiday that will best meet the different requirements of the family members. Or what happens when someone approaches a health information service concerned that their doctor has mis-diagnosed a serious condition. In such circumstances the information professional has to analyse a complex set of circumstances, re-define the problem in information terms, select and then retrieve the most appropriate bits of information and communicate it all to the individual in the most accessible and acceptable way.

Clearly, many communicators need a high level of subject knowledge. The service users will expect to be able to trust the knowledge and judgement of the person communicating the information to them. The greater the depth of subject knowledge, the greater the quality that is accorded to the information. It is for this reason that many professional

information communicators regard themselves first as subject specialists and seldom think of themselves as information professionals at all. Yet the subject knowledge only becomes really useful when complemented by a set of information communication skills.

CONSOLIDATORS

The consolidators are the people who will make sense of the world for managers. They will act as the filters and the researchers, working as part of a management team.

Decision-support systems and executive information systems have developed considerably in recent years. They are fine for dealing with pre-defined information needs and, while the more sophisticated ones can accommodate more uncertainty and unpredictability, they require managers to spend significant amounts of time getting the system to come up with the answers. But few managers have enough time to spend gathering, processing and interpreting all the information they need. And it is unlikely that they ever will.

Systems become more sophisticated, enabling people to process greater amounts of information. But the very process of development that enables the systems to become more sophisticated also has the effect of increasing the volume and complexity of the information available. The actual task of making sense of the information in order to come to a decision does not become any less time-consuming. It certainly becomes more technically complex.

For these reasons there will always be scope for division of labour and for the creation of posts for information professionals to reduce the burden on managers.

The consolidators will need to be very adept at collecting information. In some circumstances they will do this by searching databases and other secondary sources. In others they will collect and process the information themselves. In either case they will be called upon to combine information from different sources to provide a richer picture of the world. Without such combination and consolidation managers will continue to try to use two-dimensional information to make sense of a three-dimensional world.

This calls for a high level of skill in the analysis and synthesis of information. The consolidators will need to be able to see the patterns and make the connections in the information they process. They will need to be able to interpret the information in the light of the circumstances faced by the organisation for which they work.

Finally, consolidators will need to be able to present the results of their work effectively, whether orally or in writing. Above all else, this calls for the ability to reduce complexity without sacrificing accuracy.

There is little doubt that there will be a greater general need for information skills in the future. Few jobs will remain unaffected by the information revolution. There will be a need to enhance the general level of information-handling skills so that people can come to terms with the use of information at work and within their daily lives. But this will not rule out the need for skilled professionals to take on the specialist tasks and to provide others with an occasional helping hand.

THE PRESENT EDUCATION AND TRAINING ARRANGEMENTS

More than twenty years ago Radha Nadarajah (now Rasmussen) observed that the curricula of virtually all the library schools in Southeast Asia were patterned on Western models, mainly American and British[1] . She saw this as the inevitable consequence of an historical process and partly because the early consultants and advisers tended to come from America and Britain.

The dominance of Anglo-American thinking was less apparent elsewhere in the Region although many of the traditions have endured as a consequence of the fact that many of the educators and trainers in the Region were themselves educated in America or Britain.

Since then, there has been a steady process of adaptation and development to reflect local needs and conditions. Even with this process of change, it is possible to identify many similarities resulting from the fact that librarianship and information work has certain core components which must be mastered by all information professionals. What is important to note is the fact that many of the educational and training institutions in the Region now include courses that reflect the social and cultural environment within which they operate.

This process of change and adaptation needs to be accelerated to ensure that the courses that are on offer provide the most appropriate education and training to equip tomorrow's information professionals with the skills and abilities they will need to perform effectively within the emerging information societies in the Region.

THE LEVELS OF EDUCATION AND TRAINING

Despite the diversity that exists within the Region, it is possible to identify a number of common characteristics of the education and training system.

First, nearly all the education and training of librarians and information professionals is carried out at the tertiary level - in institutions of university status. Most information professionals are expected to have a first or a master's degree as their first professional qualification. There are some certificate and diploma courses but mostly these are intended for para-professionals-library and information assistants and technicians.

The actual level at which the first professional qualification is taught varies. Some institutions provide a first professional qualification at undergraduate degree level; others provide one at the postgraduate diploma level while yet others offer first professional qualifications at master's level.

[1] Nadarajah, R (1975) Evaluation of graduate library education in and from the Southeast Asian countries. **In Education and training for librarians in Southeast Asia: Proceedings of the Second Conference of Southeast Asian Librarians, University of the Philippines, 1973.** University of the Philippines Library. 97-108

Generally there seems to be a tendency to raise the level of the first professional qualification - many institutions that began by offering a qualification at diploma level have progressed through undergraduate degrees to master's programmes. There also seems to be a trend to discontinue the postgraduate diploma qualification in favour of master's degrees.

These changes are reflected in a steady development of the dual-qualified information professional - someone with a qualification in librarianship and information work but who also has specific subject knowledge or a vocational qualification in another area. At one time it was normal for someone to obtain a first professional qualification straight from school and then to go out to work. The pattern is now much more complex and information professionals may be required to offer employers not just their qualification in information work but also another formal qualification, most usually at degree level. So we see the emergence of school librarians who are qualified as both librarians and teachers, or information professionals in law firms who have degrees in both law and information work.

Traditionally, library schools were part of an arts or humanities faculty - a situation that arose almost certainly as a result of the connection with literature. This is no longer the case and departments of librarianship and information study can now be found in a wide range of faculties and groupings. Some are closely associated with faculties of education and offer education and training for school and college librarians. Many others are becoming associated with departments of computing and information technology while a third group and forming close links with business schools and faculties of commerce and management.

Similar changes can be seen in the backgrounds and previous qualifications of students. Librarianship always attracted people with a humanities background. During the 1970s and 1980s the growing demand for information scientists encouraged institutions to recruit students with a scientific or technological background. More recently the development of information and communications technologies have led institutions to try to recruit people with a prior qualification in information technology. It is also becoming common for institutions to attract students with a background in commerce or business management.

All these changes reflect the extending range of environments within which information professionals work - as the employment market has become more diverse, so have the backgrounds and prior qualifications of information professionals. And as the work has become intellectually more demanding, so the level of qualification has risen.

THE PRESENT CURRICULUM

Many people have attempted to define a core curriculum for librarianship and information work. Probably the most enduring approach is that set out by Robert Hayes in the early 1980s [2]. Essentially, Hayes identifies seven broad groups of subjects:

- **The information environment:** the information economy, libraries and society, principles of information services.
- **The professional environment:** history of the book and libraries, international and comparative librarianship, professional practice.
- **Access to the record:** bibliographic organisation, cataloguing and classification, collection development.
- **Access to information content:** advanced information storage and retrieval, classification and subject analysis, indexing and abstracting, information design, reference and information services, subject information services.
- **Management:** library management, management of information agencies, administrative management.
- **Underlying competencies:** information technology, library automation, research methodology, languages, statistics.

An analysis of the curricula of a number of schools of librarianship and information work in the Region shows that, in the main, they follow the Hayes model even though it is now nearly 20 years old. The results of this analysis are presented in Table 3 overleaf.

WEAKNESSES AND THREATS

During the last five years there have been some library schools in Australia have been closed, echoing developments that occurred in the USA in the late 1980s. These closures have obviously caused some shock waves and, to a large extent, they bring into question the relevance of the curricula and programmes in training information professionals to meet the challenges of the new information societies.

Richard Gardner [3] has provided some explanation for the demise of many library schools in the USA and his explanation should be heeded as the same reasons may apply in the Asia-Pacific Region. The reasons he gives are:

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2 Hayes, RM (1982) The core curriculum for library and information science education. **In, Library education programmes in developing countries with special reference to Asia: Proceedings of the Unesco Pre-IFLA Conference, August 1980.** London, Library Association 164-182

3 Gardner, Richard K (1987) Library and information science education: the present state and future prospects. **In,** Gardner, Richard K **Education of library and information professionals: present and future prospects.** Littleton Colorado, Libraries Unlimited. 32-52

Table 2 **Programmes analysed by the Hayes subject categories**

Country and institution	Programme	Information environment	Professional environment	Access to the record	Access to content	Management	Underlyinmg competencies
Australia							
Charles Sturt University	BA Lib & Inf Science			x	x	xx	xx
RMIT	BBus Inf & Lib Mgmt			x	x	xx	xxx
Monash University	GradDip Lib & Inf	x	xx	xx	xxxx	xx	x
University of NSW	Dip Inf Mgmt & Lib	x	x	x	xx	xxx	x
Univ, of Technology Sydney	BAppSc Information		x	xx	xxx	xx	
China							
Beijing University	BA Library Science		xx	x	xxx	xx	xxxxx
	BSc Information Science						
Beijing Foreign Studies	BA Lib & Inf Studies		xx				xx
Univ	BA		x	xx	xx	xx	xxxxx
Nanjing University	BA Librarianship			xx	xx	x	xxxxx
Wuhan University			x	x		xx	xx
Malaysia							
MARA Inst of Technology	Dip Lib & Inf Studies		x	xx	xxxx	x	xxx
New Zealand							
Victoria University	MLIS			xx	xxxx	xx	xx
Papua New Guinea							
University of PNG	BLIS	x		xx	xxx	x	x
The Philippines							
Univ of the Philippines	M Library Science		xx	xx	xx	x	xxxxx
Singapore							
Nanyang Tech University	Msc Information Studies	x		x	xxx	x	x
Thailand							
Chiang Mai University	BA Library Science			x	x	x	x
Chulalongkorn University	BA Library Science			xx	xx		xx
	MA Lib & Inf Science		xx	x	xxx	x	xx
Khon Kaen University	Grad Dip Lib & Inf Sci					xx	xxx
	BA Lib & Inf Science		xx	xx	x	x	xxx
Prince of Songkla Univ	MA Lib & Inf Science		x	x	xxx	x	xxxx
	BA Lib & Inf Science	x	x	xx		x	
	MA Lib & Inf Science			x	x	x	xx

- Diminishing opportunities for graduates in the traditional market.
- Economic climate resulting in cutbacks in the financing of cultural and educational institutions.
- Traditional and routine jobs that used to be carried out by professionals are now undertaken by support staff and technicians resulting in reduced demand for professional librarians.
- Many schools have had to diversify their programmes of study to enable their graduates to seek jobs in other information sectors.
- Libraries which previously provided the principal means of access to published information now have to compete with a variety of information providers.
- Advanced technologies now make it possible to by-pass libraries.
- The boundaries between the library, the computer centre and the archives are becoming blurred.
- Library schools have traditionally been relatively small academic units and the drop in enrolment numbers has made survival difficult.
- Library schools have not engaged successfully with other academic units in their institutions. Such lack of engagement took two principal forms: battles for pedagogical turf and perceived isolation from the academic communities within which the schools resided.

Another reason implied although not specifically stated is the lack of relevance of some of the educational programmes. These are threats that education and training institutions in the Asia-Pacific Region ignore at their peril.

A further problem arises with the ability of the education and training institutions to deliver high quality tuition in information technology. A survey conducted by Edward Huck Tee Lim in 1990 showed that there were serious deficiencies. Few teaching staff had more than a very basic knowledge of computing and information technology and few had direct experience of using computers. In many cases, people's understanding had been derived from attendance at a training course rather than through personal use. There was a clear feeling that most staff required further training or exposure to the technology.

One of the factors limiting the scope for direct experience was the lack of equipment. There was a general feeling that the institutions lacked a sufficient quantity of up-to-date equipment to use in teaching. Some institutions in the Region were very well equipped with an average of one personal computer for every five students. Others, however, fell far short of this and relied on obsolete equipment which had often been donated by aid agencies.

Clearly a great deal has happened since that survey in 1990. There is however, a general view among those who attended the series of meetings that led to the production of these guidelines that we have a long way to go before education and training in information technology reaches the level that is required.

It therefore appears that, on the one hand, we have a pressing need to educate and train a group of information professionals who will be able to make a real contribution to the emerging information societies throughout the Region. They will need to be able to respond to high-level demands for information in sophisticated ways. They must be sufficiently flexible to be able to keep up with the latest developments in a very fast-moving field. And they must be completely at ease with the use of information technology.

On the other we have a range of education and training institutions, many of which are poorly equipped, offering programmes that appear to conform, in the main, to a core curriculum that was designed twenty years ago when conditions were very different.

The time seems right to put forward a new approach to a curriculum for information professionals and their support staff in order to meet the needs of the emerging information societies in the Asia-Pacific Region.

A CURRICULUM FOR THE FUTURE

In this section we set out in a systematic form the components that we feel should be included in a curriculum for the education and training of information professionals to equip them for work in an information society.

We have divided that overall curriculum into four basic sections, corresponding to the four types of work that were identified on pages 18-22:

- **Creation:** The work associated with creating the information products and services that will be used in an information society.
- **Collection:** The work associated with building collections of information, organising, maintaining and making them accessible for users.
- **Communication:** The work associated with providing information services direct to users.
- **Consolidation:** The work of supporting the management function in organisations by gathering information in response to specific requests, analysing it, and synthesising the results into a form which can be assimilated easily.

Some courses will be designed to educate or train generalists who will be expected to be able to undertake all four types of work. In these cases it will be necessary to cover all the four sections of the curriculum. In other cases, the aim will be to produce people with a higher level of specialist skill and the education and training will concentrate on only one or two of the types of work. To allow for this, we have listed separately the curriculum for basic section, even though this produces a degree of duplication and repetition.

Within each of the basic sections we have identified three elements that need to be covered by the curriculum (see page 3):

- **Knowledge:** The understanding of the broader context within which the information professional works.
- **Skills:** The skills and competencies that information professionals exercise when carrying out their work.
- **Tools:** The techniques and tools that are used by information professionals in the course of their work.

Using this as the starting point, it is possible to break down the overall curriculum into modules. In doing this, we are specifying the subjects that will need to be included in the basic curriculum.

1 Creation	
1 Knowledge	1 Subject knowledge 2 User behaviour 3 Information needs
2 Skills	1 Communication 1.1 Inter-personal 1.2 Written 2 Information design 3 Management 3.1 Project management 3.2 Financial management 3.3 Personnel management 4 Marketing 5 Information skills 5.1 Searching 5.2 Indexing 5.3 Abstracting 5.4 Classification 6 Research skills 7 Information technology skills
3 Tools	1 Information sources

2 Collection	
1 Knowledge	1 Subject knowledge 2 User behaviour 3 Information needs
2 Skills	1 Communication 1.1 Inter-personal 1.2 Written 2 Management 2.1 Financial 2.2 Personnel 3 Marketing 4 Information skills 4.1 Searching 4.2 Indexing 4.3 Abstracting 4.4 Classification 5 Information technology skills
3 Tools	1 Information sources

3 Communication	
1 Knowledge	1 Subject knowledge 2 User behaviour 3 Information needs
2 Skills	1 Communication 1.1 Inter-personal 1.2 Written 2 Marketing 3 Information skills 3.1 Searching 4 Research skills 5 Information technology skills
3 Tools	1 Information sources

4 Consolidation	
1 Knowledge	1 Subject knowledge 2 User behaviour 3 Information needs
2 Skills	1 Communication 1.1 Inter-personal 1.2 Written 2 Management 2.1 Project 2.2 Financial 3 Marketing 4 Information skills 4.1 Searching 4.2 Abstracting 4.3 Analysia and synthesis 5 Research skills 6 Information technology skills
3 Tools	1 Information resources

It is apparent from this that some subjects are common to more than one of the four basic sections. Communication skills, for example, are required in all four. There may well, however, be a need for a different emphasis and where this is so, we have indicated it. In other cases, it may be possible simply to transfer teaching units across from one section to another. The extent of overlap is shown in the table overleaf.

For each of the subjects we have tried to allow for three different levels of tuition:

- **Basic:** This is the level of education or training required by support staff and technicians, often referred to as para-professionals. It would normally require students to have completed secondary school but it would not lead to a first degree qualification.

- **Intermediate:** This is the basic level of qualification for information professionals. Normally it would lead to a first degree qualification.

- **Advanced:** This is the highest level of education and training. Students would normally be expected to have a first degree in another subject. Alternatively, they may have a previous qualification in librarianship and information work and be seeking to up-date their knowledge and qualifications. Normally education at this level would lead to the award of a postgraduate diploma or to a master's degree.

At each of these levels we have specified five aspects of the curriculum:

- **Aim and objectives:** This is a statement of purpose - of what the unit sets out to achieve.

- **Learning outcomes:** This specifies what the student should be able to do once they have completed the unit.

- **Teaching methods:** Clearly these depend greatly on local custom and practice. What we provide here is our suggestions for an appropriate way to teach the specific subject in traditinal classroom settings. Clearly there is great scope for devleoping distance learning, particularly over the Internet. Here, the subject matter would not change but the teaching methods and forms of assessment would need to be adapted.

- **Assessment:** This is also dependent on the local situation. Again, however, we put forward our suggestions for ways in which the educators can assess whether or not the students have achieved the desired learning outcomes.

- **Associated activity:** Here we identify whether there are any other elements within the curriculum that are particularly relevant. For some subjects, for example, it is desirable that the student has first successfully completed another unit before proceeding.

By following this approach, we are able to specify the overall curriculum in a systematic and consistent way. We need to stress, however, that this is put forward as the starting point for discussions when formulating a curriculum that is appropriate to a particular set of circumstances. In each case it will be necessary to review what is recommended here in the light of local needs and to adapt the basic curriculum accordingly.

The full curriculum development process should begin with a thorough analysis of current and future demands and requirements in the environments within which the successful students will work. From this analysis it should be possible to determine the extent to which the basic curriculum offered here needs to be developed, adapted and extended. One important issue is the balance within the curriculum - it will be necessary to decide on the relative importance of the different modules.

Once the overall shape of the curriculum is agreed, the next step is to develop a syllabus. This involves taking the curriculum aims and objectives, along with the learning outcomes and devising teaching programmes that will achieve the desired outcomes. Here much will depend on local circumstances, including the skills and experience of the teaching staff, the learning resources, and information technology available to the teaching staff.

What is set out on the pages that follow, therefore, is a framework which can be used to begin the process of developing teaching programmes that meet local need.

	Creation	Collection	Communication	Consolidation
Knowledge				
Subject knowledge	•	•	•	•
User behaviour	•	•	•	•
Information needs	•	•	•	•
Skills				
Communication				
Inter-personal	•	•	•	•
Written	•		•	•
Information design	•			
Management				
Project	•			•
Financial	•	•		•
Personnel	•	•		
Marketing	•	•	•	•
Information skills				
Searching	•	•	•	•
Indexing	•	•		
Abstracting	•	•		•
Classification	•	•		
Research skills	•		•	•
Information technology	•	•	•	•
Tools				
Information sources	•	•	•	•

CREATION	Knowledge	1/1/1*
Subject knowledge		

	Basic	Intermediate	Advanced
Aim and objectives	To develop a basic understanding of the nature of the subjects to be covered by the information service	To develop a knowledge of the structure and content of the subjects to be covered by the information service	To develop a knowledge of the structure and content of the subjects and an awareness of current issues and developments
Learning outcomes	Students should: • Possess a basic level of understanding of the subject	Students should: • Be aware of the structure of the subject and its relationship with other subjects • Have a reasonable knowledge of at least some part of the overall subject	Students should: • Have a thorough knowledge of the structure of the subject, its historical development and its relationships with other subjects • Have a detailed knowledge of a significant part of the overall subject • Be aware of current trends, developments and issues
Teaching methods	Lectures and reading	Lectures, reading and seminars	Lectures, reading and seminars
Assessment	Essays and examination	Essays and examination	Essays and examination
Associated activity	Knowledge can be deepened by the use of relevant examples drawn from the subject in all other parts of the curriculum	Knowledge can be deepened by the use of relevant examples drawn from the subject in all other parts of the curriculum	Knowledge can be deepened by the use of relevant examples drawn from the subject in all other parts of the curriculum

* The code is simply for identifying the different elements of the curriculum. It consists of a three-digit number. The first digit refers to the professional group (Creators = 1, Collectors = 2, Communicators = 3, Consolidators = 4). The second digit refers to the knowledge, skill, tools category (Knowledge = 1, Skills = 2, Tools = 3). The third digit refers to the subject or topic. Sub-topics can be shown as decimals.

Thus 2/3/1.2 is the code for the second subtopic of the first topic in the tools category of the collectors group.

CREATION		Knowledge	1/1/2
User behaviour			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop an understanding of how people are likely to use the information	To develop an understanding of the ways in which people search for information	To develop an understanding of the basic patterns of user behaviour in different cultural and political contexts and to develop the ability to apply this to particular information products and services
Learning outcomes	Students should: • Be aware of the context within which the information will be used • Understand broadly how the information will be used	Students should: • Understand how the information will be used in different contexts • Be able to define and predict the search strategies that people will use	Students should: • Understand the different approaches to information searching • Understand the significance of the different cultural and political contexts within which the information will be used • Be able to apply this understanding to the design of information products and services
Teaching methods	Lectures, workshops and practical assignments	Lectures, workshops and practical assignments	Lectures, workshops and practical assignments
Assessment	Examination	Examination	Examination and project work
Associated activity			

CREATION	Knowledge		1/1/3
Information needs			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic understanding of user information needs	To develop a basic understanding of user information needs and the cultural and political contexts within which they arise	To develop a thorough understanding of user information needs and the contexts within which they arise. To understand the impact of different cultures and political systems. To develop the ability to apply this understanding to the design of information products and services
Learning outcomes	Students should: • Understand what types of information users need	Students should: • Understand what types of information users need • Understand the main contexts within which the needs arise	Students should: • Understand what types of information users need and why they need them • Understand the significance of the different contexts within which the needs arise • Be able to carry out research to identify user information needs
Teaching methods	Lectures and practical assignments	Lectures and practical assignments	Lectures, practical assignments and seminars
Assessment	Examination	Examination and project work	Examination and project work
Associated activity	The practical assignments need to be related to the work on subject knowledge and user behaviour	The practical assignments and project work need to be related to the work on subject knowledge and user behaviour	The project work needs to be related to the work on subject knowledge and user behaviour. The project should involve research into the information needs of a specific group

CREATION		Skills	1/2/1.1
Inter-personal communication			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop basic inter-personal communication skills	To develop the inter-personal skills required to deal successfully with colleagues, clients and customers in different contexts	To understand the cultural and political contexts within which communication takes place. To develop a high level of inter-personal communication skills, including negotiation skills and the ability to make public presentations
Learning outcomes	Students should: • Be able to communicate effectively with colleagues and users of the service	Students should: • Be able to communicate effectively with others • Be able to recognise the different approaches required when dealing with different types of people	Students should: • Understand the theory and practice of inter-personal communication • Be able to communicate effectively with a range of different types of people • Be able to negotiate effectively • Be confident about making presentations to a range of different audiences
Teaching methods	Lectures and practical sessions	Lectures, seminars and practical sessions	Lecture, seminars s and practical sessions
Assessment	Practical exercises	Practical exercises	Practical exercises
Associated activity			

CREATION	Skills		1/2/1.2
Written communication			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop basic writing skills	To develop the skills required to write clear and concise reports	To develop the skills required to write, design and evaluate a range of printed and electronic documents and to understand the factors that affect the design of documents
Learning outcomes	Students should: • Be able to write clearly and concisely	Students should: • Be able to analyse and synthesise information • Be able to write clearly and concisely • Understand the requirements of different audiences	Students should: • Be able to analyse and synthesise complex information • Be able to write clearly and concisely for different audiences • Understand the requirements of different media
Teaching methods	Lectures, workshops and practical assignments	Lectures, workshops and practical assignments	Lectures, workshops, analysis of different documents and practical assignments
Assessment	Practical exercises	Practical exercises	Practical exercises and examination
Associated activity	Should be planned in conjunction with the module on information design (1/2/2)	Should be planned in conjunction with the module on information design (1/2/2)	Should be planned in conjunction with the module on information design (1/2/2)

CREATION	Skills		1/2/2
Information design			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic understanding of the need for and principles of information design	To develop a clear understanding of the need for and principles of information design and the ways these can be applied to printed and electronic documents	To develop thorough understanding of the principles and practices of information design and the ability to apply these to a range of printed and electronic documents, selecting the most appropriate designs for different audiences
Learning outcomes	Students should: • Understand the basic principles of document design	Students should: • Understand the basic principles of document design • Understand how these principles can be applied to a range of different types of printed and electronic document	Students should: • Understand the principles of document design • Be able to apply these principles to a range of different types of printed and electronic document • Be able to select the most appropriate design for different audiences
Teaching methods	Practical exercises and some lectures	Practical exercises and some lectures	Lectures and practical exercises
Assessment	Practical exercises	Practical exercises	Practical exercises and examination
Associated activity	Should be planned in conjunction with the module on writing skills (1/2/1.2), user behaviour (1/1/2) and information skills (1/2/5.1-5.4)	Should be planned in conjunction with the module on writing skills (1/2/1.2), user behaviour (1/1/2) and information skills (1/2/5.1-5.4)	Should be planned in conjunction with the module on writing skills (1/2/1.2), user behaviour (1/1/2) and information skills (1/2/5.1-5.4)

CREATION	Skills	1/2/3.1

Project management

	Basic	Intermediate	Advanced
Aim and objectives	To develop an understanding of the need for project management	To develop an understanding of the basic principles and practice of project management	To develop the ability to manage a variety of different types of project efficiently and effectively
Learning outcomes	Students should: • Understand the role and importance of project management	Students should: • Understand the principles and practices of project management • Be able to manage small, relatively simple projects	Students should: • Understand the different approaches towards project management • Be familiar with different types of project management software • Be able to manage a range of different types of project, including complex ones
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination	Examination and practical assignment	Examination and practical assignment
Associated activity	Should be planned in conjunction with the module on financial management (1/2/3.2)	Should be planned in conjunction with the module on financial management (1/2/3.2)	Should be planned in conjunction with the module on financial management (1/2/3.2)

CREATION	Skills	1/2/3.2
Financial management		

	Basic	Intermediate	Advanced
Aim and objectives	To develop an understanding of the need for financial management	To develop basic skills in aspects of financial management	To develop a full range of financial management skills
Learning outcomes	Students should: • Appreciate the need for financial management • Understand the basic principles of financial management	Students should: • Understand how to cost a project, draw up a budget and monitor expenditure • Be able to use spreadsheets	Students should: • Be able to calculate the cost of projects, prepare budgets, monitor expenditure, forecast cash-flows and allow for cost increases • Be familiar with spreadsheets • Understand basic accounting principles
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination	Examination and practical assignment	Examination and practical assignment
Associated activity	Should be planned in conjunction with the module on project management (1/2/3.1)	Should be planned in conjunction with the module on project management (1/2/3.1)	Should be planned in conjunction with the module on project management (1/2/3.1)

CREATION	Skills	1/2/3.3
Personnel management		

	Basic	Intermediate	Advanced
Aim and objectives	To develop an understanding of the need for personnel management	To develop basic skills in aspects of personnel management	To develop a full range of personnel management skills
Learning outcomes	Students should: • Appreciate the need for personnel management • Understand the basic principles of personnel management	Students should: • Understand the basic principles of personnel management • Be able to manage a small team of support staff	Students should: • Understand the broad theory of human resource development • Understand the theory and practice of personnel management • Be capable of managing teams of professional staff
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination	Examination	Examination
Associated activity			

CREATION		Skills	1/2/4
Marketing			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic understanding of the need for and principles of marketing	To develop an understanding of the principles and practices of marketing	To develop the ability to apply the principles and practices of marketing to information products and services
Learning outcomes	Students should: • Understand the need for and the basic principles of marketing	Students should: • Understand the theory and practices of marketing • Be able to draw up a marketing plan for an information product	Students should: • Understand the theory and practice of marketing • Be able to draw up and apply a marketing plan for an information product • Be able to carry out basic market research and apply the findings
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination	Examination and practical assignments	Examination and practical assignments
Associated activity			

CREATION	Skills		1/2/5.1
Information skills: searching			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop basic information searching skills	To develop the ability to search for information using a range of different sources	To develop high-level searching skills using a variety of different print and electronic media
Learning outcomes	Students should: • Be able to undertake successfully basic information searches	Students should: • Be able to identify appropriate information sources • Be able to devise appropriate search strategies • Be able to search for information in a range of different sources and media	Students should: • Be able to analyse subjects into their component parts • Understand the theory of information retrieval • Be able to identify the relative strengths and weaknesses of different sources of information • Be able to devise appropriate search strategies • Be able to search for information in a range of different sources and media
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	Should be planned in conjunction with the module on IT (1/2/7)	Should be planned in conjunction with the module on IT(1/2/7)	Should be planned in conjunction with the module on IT (1/2/7)

CREATION		Skills	1/2/5.2
Information skills: Indexing			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop an understanding of the basic indexing principles	To develop the ability to produce appropriate indexes for information products and services	To understand and be able to apply the theory and practice of indexing
Learning outcomes	Students should: • Be able to use a range of different types of index	Students should: • Be able to produce indexes for a range of different types of information	Students should: • Be able to analyse subjects into their component parts • Understand the theories of indexing and thesaurus construction • Be able to apply the principles of indexing to a range of different types of information
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	Should be planned in conjunction with the module on classification (1/2/5.4)	Should be planned in conjunction with the module on classification (1/2/5.4)	Should be planned in conjunction with the module on classification (1/2/5.4)

CREATION	Skills	1/2/5.3

Information skills: Abstracting

	Basic	Intermediate	Advanced
Aim and objectives	To develop a basic skill in summarising documents	To develop the ability to prepare a range of different abstracts and summaries	To develop high-level skills in abstracting and summarising a variety of different types of document, recognising the needs of different audiences
Learning outcomes	Students should: • Be able to produce brief summaries of simple documents	Students should: • Understand the difference between an abstract and a summary • Be able to abstract and summarise relatively complex documents	Students should: • Be able to analyse subjects into their component parts • Understand the theory and practice of abstracting • Be able to abstract and summarise a range of complex documents • Be able to produce abstracts that are appropriate for different audiences
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity			This should be developed in association with the modules on subject knowledge (1/1/1) and written communication skills (1/2/1.2)

CREATION	Skills	1/2/5.4

Information skills: Classification

	Basic	Intermediate	Advanced
Aim and objectives	To develop an understanding of the basic principles of classification and a familiarity with at least one scheme	To develop an understanding of classification theory and a familiarity with enumerative and faceted schemes	To develop an understanding of the of classification theory and the ability to use a range of enumerative and faceted schemes
Learning outcomes	Students should: • Understand how knowledge can be organised in structured ways • Be able to use at least one scheme	Students should: • Understand classification theory, including the differences between faceted and enumerative schemes • Be able to use a range of schemes	Students should: • Be able to analyse subjects into their component parts • Have a clear understanding of classification theory • Be able to use a range of different schemes • Be able to devise a simple classification scheme for a particular purpose
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	Should be planned in conjunction with the module on Indexing (1/2/5.2)	Should be planned in conjunction with the module on indexing (1/2/5.2)	Should be planned in conjunction with the module on indexing (1/2/5.2)

CREATION	Skills		1/2/6
Research skills			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop the ability to assist with research projects	To develop a basic understanding of the research process and the methods that can be used	To develop a high-level understanding of the research process, including the ability to design projects, select and apply the most appropriate methods, analyse the data collected and write up the results
Learning outcomes	Students should: • Be able to assist the research process by handling research data in a systematic and accurate way	Students should: • Understand the basic theory and practice of research • Be familiar with a number of quantitative and qualitative methods • Be able to undertake a small research project with minimum supervision	Students should: • Be thoroughly familiar with the theory and practice of research • Be able to design research projects • Be able to evaluate and use a range of different research methods • Be able to analyse quantitative and qualitative data • Be able to draw appropriate conclusions and produce concise reports for different audiences
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures, practical exercises and a research project
Assessment	Practical assignments	Practical assignments	The research project
Associated activity			This should be developed in association with the modules on written communications skills (1/2/1.2) and presentation skills (1/2/1.3)

CREATION	Skills	1/2/7

Information technology skills

	Basic	Intermediate	Advanced
Aim and objectives	To develop a basic familiarity with information technology and electronic networks	To develop familiarity with a range of different types of hardware and software and electronic networks	To develop a high-level of information technology skills, including the ability to make sophisticated use of a range of software packages and electronic networks
Learning outcomes	Students should: • Be able to use a personal computer for word processing and Internet searching	Students should: • Be able to use a personal computer for word processing, spreadsheets and databases • Be able to conduct computer searches using online, CD-Rom and the Internet • Be familiar with a range of peripherals such as printers and scanners • Be able to use different electronic networks	Students should: • Be able to use with ease a range of applications packages, including word processing, spreadsheets and databases • Be able to search for information using a range of different media, including the Internet • Be able to use desk-top publishing software • Be able to evaluate different types of equipment and software • Be confident in using different electronic networks
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	Should be planned in conjunction with the module on searching (1/2/5.1)	Should be planned in conjunction with the module on searching (1/2/5.1)	Should be planned in conjunction with the module on searching (1/2/5.1)

Note. At all levels and throughout all modules, IT will be integrated into the curriculum, not taught in a vacuum.

CREATION	Skills		1/3/1
Information sources			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a familiarity with a range of printed and electronic information sources	To develop an understanding of the strengths and weaknesses of a wide range of printed and electronic nformation sources and understand the role of informal, personal networks	To develop a familiarity with a wide range of printed and electronic information sources and a knowledge of informal and perssonal networks and the ability to evaluate them
Learning outcomes	Students should: • Be able to use most of the common information sources whether printed or electronic	Students should: • Be familiar with a wide range of formal and informal information sources • Be able to evaluate their strengths and weaknesses	Students should: • Be familiar with a wide range of formal and informal information sources • Be able to evaluate their strengths and weaknesses • Be able easily to locate information when it is required • Understand how to initiate and maintain contacts within personal networks
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	This should be developed in association with the module onsubject knowledge (1/1/1)	This should be developed in association with the module onsubject knowledge (1/1/1)	This should be developed in association with the module onsubject knowledge (1/1/1)

COLLECTION	Knowledge	2/1/1
Subject knowledge		

	Basic	Intermediate	Advanced
Aim and objectives	To develop a basic understanding of the nature of the subjects to be covered by the collection	To develop a knowledge of the structure and content of the subjects to be covered by the collection and to be aware of the major information sources	To develop a knowledge of the structure and content of the subjects and an awareness of the major information sources, current issues and developments
Learning outcomes	Students should: • Possess a basic level of understanding of the subject	Students should: • Be aware of the structure of the subject and its relationship with other subjects • Have a reasonable knowledge of at least some part of the overall subject • Be familiar with the major information sources	Students should: • Have a thorough knowledge of the structure of the subject, its historical development and its relationships with other subjects • Have a detailed knowledge of a significant part of the overall subject • Be familiar with the major information sources • Be aware of current trends, developments and issues
Teaching methods	Lectures and reading	Lectures, reading and seminars	Lectures, reading and seminars
Assessment	Essays and examination	Essays and examination	Essays and examination
Associated activity	This module should be planned in conjunction with the one on information sources (2/3/1)	This module should be planned in conjunction with the one on information sources (2/3/1)	This module should be planned in conjunction with the one on information sources (2/3/1)

COLLECTION	Knowledge		2/1/2
User behaviour			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop an understanding of how people are likely to use the collection	To develop an understanding of the ways in which people will use the collection and the ways in which they can be assisted	To develop an understanding of the patterns of user behaviour, particularly information searching, and to develop the ability to apply this to a collection development strategy
Learning outcomes	Students should: • Be aware of the context within which the collection will be used • Understand broadly how the collection will be used	Students should: • Understand how the collection will be used • Be able to define and predict the search strategies that people will use • Understand how people can be helped to use the collection	Students should: • Understand the different approaches to information searching • Understand the significance of the different contexts within which the collection will be used • Be able to apply this understanding when preparing a collection development strategy
Teaching methods	Lectures, workshops and practical assignments	Lectures, workshops and practical assignments	Lectures, workshops and practical assignments
Assessment	Examination	Examination	Examination and project work
Associated activity			

COLLECTION	Knowledge	2/1/3
Information needs		

	Basic	Intermediate	Advanced
Aim and objectives	To develop a basic understanding of the reasons why users need the collection	To develop a basic understanding of user information needs and the contexts within which they arise	To develop a thorough understanding of user information needs and the contexts within which they arise. To develop the ability to apply this understanding to the design, organisation and operation of the collection
Learning outcomes	Students should: • Understand why users need to use the collection • Understand how people are likely to use the collection	Students should: • Understand what types of information users need • Understand the main contexts within which the needs arise • Be able to develop ways of making the collection easier to use	Students should: • Understand what types of information users need and why they need them • Understand the significance of the different contexts within which the needs arise • Be able to carry out research to identify user information needs • Be able to apply their understanding to the design, organisation and management of the collection
Teaching methods	Lectures and practical assignments	Lectures and practical assignments	Lectures, practical assignments and seminars
Assessment	Examination	Examination and project work	Examination and project work
Associated activity	The practical assignments need to be related to the work on subject knowledge and user behaviour	The practical assignments and project work need to be related to the work on subject knowledge and user behaviour	The project work needs to be related to the work on subject knowledge and user behaviour. The project should involve research into the information needs of a specific group

COLLECTION	Skills		2/2/1.1
Inter-personal communication			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop basic inter-personal communication skills	To develop the inter-personal skills required to deal successfully with clients and customers	To develop a high level of inter-personal communication skills, including negotiation skills and the ability to make public presentations
Learning outcomes	Students should: • Be able to communicate effectively with their colleagues and users of the collection	Students should: • Be able to communicate effectively with their colleagues and users of the collection • Be able to recognise the different approaches required when dealing with different types of people	Students should: • Be able to communicate effectively with a range of different types of people • Be able to negotiate effectively • Be confident about making presentations to a range of different audiences
Teaching methods	Lectures and practical sessions	Lectures, seminars and practical sessions	Lecture, seminars s and practical sessions
Assessment	Practical exercises	Practical exercises	Practical exercises
Associated activity			

COLLECTION	Skills		2/2/1.2
Written communication			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop basic writing skills	To develop the skills required to write clear and concise reports	To develop the skills required to write, design and evaluate a range of printed and electronic documents and to understand the factors that affect the design of documents
Learning outcomes	Students should: • Be able to write clearly and concisely	Students should: • Be able to analyse and synethesise information • Be able to write clearly and concisely • Understand the requirements of different audiences	Students should: • Be able to analyse and synthesise complex information • Be able to write clearly and concisely for different audiences • Understand the requirements of different media
Teaching methods	Lectures, workshops and practical assignments	Lectures, workshops and practical assignments	Lectures, workshops, analysis of different documents and practical assignments
Assessment	Practical exercises	Practical exercises	Practical exercises and examination
Associated activity	Should be planned in conjunction with the module on information design (2/2/2)	Should be planned in conjunction with the module on information design (2/2/2)	Should be planned in conjunction with the module on information design (2/2/2)

COLLECTION	Skills		2/2/2.1
Financial management			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop an understanding of the need for financial management	To develop basic skills in aspects of financial management	To develop a full range of financial management skills
Learning outcomes	Students should: • Appreciate the need for financial management • Understand the basic principles of financial management	Students should: • Understand how to draw up a budget and monitor expenditure • Be able to use spreadsheets	Students should: • Be able to cost projects, prepare budgets, monitor expenditure, forecast cash-flows and allow for cost increases • Be familiar with spreadsheets • Understand basic accounting principles
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination	Examination and practical assignment	Examination and practical assignment
Associated activity			

COLLECTION	Skills		2/2/2.2
Personnel management			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop an understanding of the need for personnel management	To develop basic skills in aspects of personnel management	To develop a full range of personnel management skills
Learning outcomes	Students should: • Appreciate the need for personnel management • Understand the basic principles of personnel management	Students should: • Understand the basic principles of personnel management • Be able to manage a small team of support staff	Students should: • Understand the theory and practice of personnel management • Be capable of managing teams of professional staff
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination	Examination	Examination
Associated activity			

COLLECTION	Skills		2/2/3
Marketing			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic understanding of the need for and principles of marketing	To develop an understanding of the principles and practices of marketing	To develop the ability to apply the principles and practices of marketing to a collection
Learning outcomes	Students should: • Understand the need for and the basic principles of marketing	Students should: • Understand the theory and practices of marketing • Be able to draw up a marketing plan for a collection	Students should: • Understand the theory and practice of marketing • Be able to draw up and apply a marketing plan for a • Be able to carry out basic market research and apply the findings
Teaching methods	Lectures and practical exercises.	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination	Examination and practical assignments	Examination and practical assignments
Associated activity			

COLLECTION	Skills		2/2/4.1
Information skills: searching			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic ability to search the collection	To develop the ability to search the collection for information using a range of different approaches	To develop high-level searching skills using a variety of different print and electronic media
Learning outcomes	Students should: • Be able to undertake successfully basic information searches	Students should: • Be able to identify appropriate information sources • Be able to devise appropriate search strategies • Be able to search for information in a range of different sources and media	Students should: • Understand the theory of information retrieval • Be able to identify the relative strengths and weaknesses of different sources of information • Be able to devise appropriate search strategies • Be able to search for information in a range of different sources and media
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	Should be planned in conjunction with the module on IT (2/2/5)	Should be planned in conjunction with the module on IT(2/2/5)	Should be planned in conjunction with the module on IT (21/2/5)

COLLECTION		Skills	2/2/4.2
Information skills: Indexing			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop an understanding of the basic indexing principles	To develop the ability to produce appropriate indexes to the collection	To understand and be able to apply the theory and practice of indexing
Learning outcomes	Students should: • Be able to use a range of different types of index	Students should: • Be able to use a range of different types of index • Be able to produce indexes for a range of different types of information in the collection	Students should: • Understand the theories of indexing and thesaurus construction • Be able to apply the principles of indexing to a range of different types of information
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	Should be planned in conjunction with the module on classification (2/2/4.4)	Should be planned in conjunction with the module on classification (2/2/4.4)	Should be planned in conjunction with the module on classification (2/2/4.4)

COLLECTION		Skills	2/2/4.3
Information skills: Abstracting			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic skill in summarising documents	To develop the ability to prepare a range of different abstracts and summaries	To develop high-level skills in abstracting and summarising a variety of different types of document, recognising the needs of different audiences
Learning outcomes	Students should: • Be able to produce brief summaries of simple documents	Students should: • Understand the difference between an abstract and a summary • Be able to abstract and summarise relatively complex documents	Students should: • Understand the theory and practice of abstracting • Be able to abstract and summarise a range of complex documents • Be able to produce abstracts that are appropriate for different audiences
Teaching methods	Lectures and practical exercises	Lectures and practical exercises.	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity			

COLLECTION	Skills	2/2/4.4

Information skills: Classification

	Basic	Intermediate	Advanced
Aim and objectives	To develop an understanding of the basic principles of classification and a familiarity with at least one scheme	To develop an understanding of classification theory and a familiarity with enumerative and faceted schemes	To develop an understanding of the of classification theory and the ability to use a range of enumerative and faceted schemes
Learning outcomes	Students should: • Understand how knowledge can be organised in structured ways • Be able to use at least one scheme	Students should: • Understand classification theory, including the differences between faceted and enumerative schemes • Be able to use a range of schemes	Students should: • Have a clear understanding of classification theory • Be able to use and evaluate a range of different schemes • Be able to devise a simple classification scheme for a particular purpose
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	Should be planned in conjunction with the module on Indexing (2/2/4.2)	Should be planned in conjunction with the module on indexing (2/2/4.2)	Should be planned in conjunction with the module on indexing (2/2/4.2)

COLLECTION	Skills		2/2/5
Information technology skills			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic familiarity with information technology	To develop familiarity with a range of different types of hardware and software	To develop a high-level of information technology skills, including the ability to make sophisticated use of a range of software packages
Learning outcomes	Students should: • Be able to use a personal computer for word processing and Internet searching	Students should: • Be able to use a personal computer for word processing, spreadsheets and databases • Be able to conduct computer searches using online, CD-Rom and the Internet • Be familiar with a range of peripherals such as printers and scanners	Students should: • Be able to use with ease a range of applications packages, including word processing, spreadsheets and databases • Be able to search for information using a range of different media, including the Internet • Be able to evaluate different types of equipment and software
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	Should be planned in conjunction with the module on searching (2/2/4.1)	Should be planned in conjunction with the module on searching (2/2/4.1)	Should be planned in conjunction with the module on searching (2/2/4.1)

COLLECTION	Tools		2/3/1
Information sources			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a familiarity with the range of printed and electronic information sources that are likely to be found in the collection	To develop an understanding of the strengths and weaknesses of a wide range of printed and electronic information sources and the ability to evaluate them	To develop a thorough knowledge of a wide range of printed and electronic information sources and the ability to evaluate them
Learning outcomes	Students should: • Be able to use most of the common information sources whether printed or electronic • Be able to carry out routine processing operations with minimum supervision	Students should: • Be familiar with a wide range of information sources • Be able to evaluate their strengths and weaknesses • Be able to select, acquire and discard materials	Students should: • Be knowledgeable about a wide range of information sources • Be able to evaluate their strengths and weaknesses • Be able easily to locate information when it is required • Be able to prepare collection development strategies
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity			

COMMUNICATION	Knowledge		3/1/1
Subject knowledge			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic understanding of the nature of the subjects to be covered by the information service	To develop a knowledge of the structure and content of the subjects to be covered by the information service	To develop a knowledge of the structure and content of the subjects and an awareness of current issues and developments
Learning outcomes	Students should: • Possess a basic level of understanding of the subject	Students should: • Be aware of the structure of the subject and its relationship with other subjects • Have a reasonable knowledge of at least some part of the overall subject • Be aware of current issues	Students should: • Have a thorough knowledge of the structure of the subject, its historical development and its relationships with other subjects • Have a detailed knowledge of a significant part of the overall subject • Be aware of current trends, developments and issues
Teaching methods	Lectures and reading	Lectures, reading and seminars	Lectures, reading and seminars
Assessment	Essays and examination	Essays and examination	Essays and examination
Associated activity	Knowledge can be deepened by the use of relevant examples drawn from the subject in all other parts of the curriculum	Knowledge can be deepened by the use of relevant examples drawn from the subject in all other parts of the curriculum	Knowledge can be deepened by the use of relevant examples drawn from the subject in all other parts of the curriculum

COMMUNICATION	Knowledge		3/1/2
User behaviour			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop an understanding of how people are likely to behave when using the information service	To develop an understanding of the ways in which people behave when requesting information	To develop an understanding of the basic patterns of user behaviour, particularly information seeking, and to develop the ability to apply this to particular forms of service
Learning outcomes	Students should: • Be aware of the context within which the information will be requested • Understand how best to interact with the user	Students should: • Understand the dynamics of the interaction between user and communicator • Be aware of different patterns of behaviour • Be able to control the dialogue between user and communicator	Students should: • Understand the different approaches to information seeking • Be able to define and predict the behaviour patterns that people will display • Understand the dynamics of the interaction between user and communicator • Be able to apply this understanding to the design of information services
Teaching methods	Lectures, workshops and practical assignments	Lectures, workshops and practical assignments	Lectures, workshops and practical assignments
Assessment	Examination	Examination	Examination and project work
Associated activity	This module should be planned in conjunction with the module on inter-personal communication (3/2/1.1)	This module should be planned in conjunction with the module on inter-personal communication (3/2/1.1)	This module should be planned in conjunction with the module on inter-personal communication (3/2/1.1)

COMMUNICATION	Knowledge		3/1/3
Information needs			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic understanding of user information needs	To develop a basic understanding of user information needs and the contexts within which they arise	To develop a thorough understanding of user information needs and the contexts within which they arise. To develop the ability to apply this understanding to the design of an information service
Learning outcomes	Students should: • Understand what types of information users need	Students should: • Understand what types of information users need • Understand the main contexts within which the needs arise	Students should: • Understand what types of information users need and why they need them • Understand the significance of the different contexts within which the needs arise • Be able to carry out research to identify user information needs
Teaching methods	Lectures and practical assignments	Lectures and practical assignments	Lectures, practical assignments and seminars
Assessment	Examination	Examination and project work	Examination and project work
Associated activity	The practical assignments need to be related to the work on subject knowledge and user behaviour	The practical assignments and project work need to be related to the work on subject knowledge and user behaviour	The project work needs to be related to the work on subject knowledge and user behaviour. The project should involve research into the information needs of a specific group

COMMUNICATION	Skills		3/2/1.1
Inter-personal communication			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop basic inter-personal communication skills	To develop the inter-personal skills required to deal successfully with clients and customers	To develop a high level of inter-personal communication skills, including negotiation skills and the ability to make public presentations
Learning outcomes	Students should: • Be able to communicate effectively with colleagues and users of the information service	Students should: • Be able to communicate effectively with others • Be able to recognise the different approaches required when dealing with different types of people • Should be able to control the dialogue between the user and the communicator	Students should: • Understand fully the theory and practice of inter-personal communication • Be able to communicate effectively with a range of different types of people • Be able to negotiate effectively • Be confident about making presentations to a range of different audiences
Teaching methods	Lectures and practical sessions	Lectures, seminars and practical sessions	Lecture, seminars s and practical sessions
Assessment	Practical exercises	Practical exercises	Practical exercises
Associated activity	This module should be planned in conjunction with the module on user behaviour (3/1/2)	This module should be planned in conjunction with the module on user behaviour (3/1/2)	This module should be planned in conjunction with the module on user behaviour (3/1/2)

COMMUNICATION	Skills		3/2/1.2
Written communication			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop basic writing skills	To develop the skills required to write and design a range of documents	To develop the skills required to write, design and evaluate a range of printed and electronic documents and to understand the factors that affect the design of documents
Learning outcomes	Students should: • Be able to write clearly and concisely	Students should: • Be able to write clearly and concisely • Understand the requirements of different audiences	Students should: • Be able to write clearly and concisely for different audiences • Understand the requirements of different media
Teaching methods	Lectures, workshops and practical assignments	Lectures, workshops and practical assignments	Lectures, workshops, analysis of different documents and practical assignments
Assessment	Practical exercises	Practical exercises	Practical exercises and examination
Associated activity			

COMMUNICATION	Skills	3/2/2
Marketing		

	Basic	Intermediate	Advanced
Aim and objectives	To develop a basic understanding of the need for and principles of marketing	To develop an understanding of the principles and practices of marketing	To develop the ability to apply the principles and practices of marketing to information services
Learning outcomes	Students should: • Understand the need for and the basic principles of marketing	Students should: • Understand the theory and practices of marketing • Be able to draw up a marketing plan for an information service	Students should: • Understand the theory and practice of marketing • Be able to draw up and apply a marketing plan for an information service • Be able to carry out basic market research and apply the findings
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination	Examination and practical assignments	Examination and practical assignments
Associated activity			

COMMUNICATION	Skills		3/2/3.1
Information skills: searching			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop basic information searching skills	To develop the ability to search for information using a range of different sources	To develop high-level searching skills using a variety of different print and electronic media
Learning outcomes	Students should: • Be able to undertake successfully basic information searches	Students should: • Be able to identify appropriate information sources • Be able to devise appropriate search strategies • Be able to search for information in a range of different sources and media	Students should: • Understand the theory of information retrieval • Be able to identify the relative strengths and weaknesses of different sources of information • Be able to devise appropriate search strategies • Be able to search for information in a range of different sources and media
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	Should be planned in conjunction with the module on IT (3/2/55)	Should be planned in conjunction with the module on IT(3/2/5)	Should be planned in conjunction with the module on IT (3/2/5)

COMMUNICATION	Skills		3/2/4
Research skills			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop the ability to assist with research projects	To develop a basic understanding of the research process and the methods that can be used	To develop a high-level understanding of the research process, including the ability to design projects, select and apply the most appropriate methods, analyse the data collected and write up the results
Learning outcomes	Students should: • Be able to assist the research process by handling research data in a systematic and accurate way	Students should: • Understand the basic theory and practice of research • Be familiar with a number of quantitative and qualitative methods • Be able to undertake a small research project with minimum supervision	Students should: • Be thoroughly familiar with the theory and practice of research • Be able to design research projects • Be able to evaluate and use a range of different research methods. • Be able to analyse quantitative and qualitative data • Be able to draw appropriate conclusions and produce concise reports for different audiences
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures, practical exercises and a research project
Assessment	Practical assignments	Practical assignments	The research project
Associated activity			

COMMUNICATION	Skills		3/2/5
Information technology skills			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic familiarity with information technology	To develop familiarity with a range of different types of hardware and software	To develop a high-level of information technology skills, including the ability to make sophisticated use of a range of software packages
Learning outcomes	Students should: • Be able to use a personal computer for word processing and searching using the Internet and other electronic media	Students should: • Be able to use a personal computer for word processing, spreadsheets and databases • Be able to conduct computer searches using online, CD-Rom and the Internet • Be familiar with a range of peripherals such as printers and scanners	Students should: • Be able to use with ease a range of applications packages, including word processing, spreadsheets and databases • Be able to search for information using a range of different media, including the Internet • Be able to evaluate different types of equipment and software
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	Should be planned in conjunction with the module on searching (3/2/3.1)	Should be planned in conjunction with the module on searching (3/2/3.1)	Should be planned in conjunction with the module on searching (3/2/3.1)

COMMUNICATION	Tools		3/3/1
Information sources			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a familiarity with a range of printed and electronic information sources	To develop the ability to use, and an understanding of the strengths and weaknesses, of a wide range of printed and electronic information sources	To develop a familiarity with a wide range of printed and electronic information sources and the ability to evaluate them
Learning outcomes	Students should: • Be able to use most of the common information sources whether printed or electronic	Students should: • Be familiar with a wide range of information sources • Be able to evaluate their strengths and weaknesses	Students should: • Be familiar with a wide range of information sources • Be able to evaluate their strengths and weaknesses • Be able easily to locate information when it is required
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity			

CONSOLIDATION	Knowledge		4/1/1
Subject knowledge			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic understanding of the nature of the subjects to be covered by the service	To develop a knowledge of the structure and content of the subjects to be covered by the service	To develop a knowledge of the structure and content of the subjects and an awareness of current issues and developments
Learning outcomes	Students should: • Possess a basic level of understanding of the subject	Students should: • Be aware of the structure of the subject and its relationship with other subjects • Have a reasonable knowledge of at least some part of the overall subject • Be aware of current issues	Students should: • Have a thorough knowledge of the structure of the subject, its historical development and its relationships with other subjects • Have a detailed knowledge of a significant part of the overall subject • Be aware of current trends, developments and issues
Teaching methods	Lectures and reading	Lectures, reading and seminars	Lectures, reading and seminars
Assessment	Essays and examination	Essays and examination	Essays and examination
Associated activity	Knowledge can be deepened by the use of relevant examples drawn from the subject in all other parts of the curriculum	Knowledge can be deepened by the use of relevant examples drawn from the subject in all other parts of the curriculum	Knowledge can be deepened by the use of relevant examples drawn from the subject in all other parts of the curriculum

CONSOLIDATION	Knowledge	4/1/2
User behaviour		

	Basic	Intermediate	Advanced
Aim and objectives	To develop an understanding of how people are likely to use the information	To develop an understanding of the ways in which people ask for information	To develop an understanding of the basic patterns of user behaviour and to develop the ability to apply this to the development of the service
Learning outcomes	Students should: • Be aware of the context within which the information will be used • Understand broadly how the information will be used	Students should: • Understand how the information will be used in different contexts • Be able to define and predict the types of information that people will request	Students should: • Understand the different types of information that people will request • Understand the significance of the different contexts within which the information will be used • Be able to apply this understanding to the development of the service
Teaching methods	Lectures, workshops and practical assignments	Lectures, workshops and practical assignments	Lectures, workshops and practical assignments
Assessment	Examination	Examination	Examination and project work
Associated activity			

CONSOLIDATION	Knowledge		4/1/3
Information needs			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic understanding of user information needs	To develop a basic understanding of user information needs and the contexts within which they arise	To develop a thorough understanding of user information needs and the contexts within which they arise. To develop the ability to apply this understanding to the development of the service
Learning outcomes	Students should: • Understand what types of information users need	Students should: • Understand what types of information users need • Understand the main contexts within which the needs arise	Students should: • Understand what types of information users need and why they need them • Understand the significance of the different contexts within which the needs arise • Be able to carry out research to identify user information needs
Teaching methods	Lectures and practical assignments	Lectures and practical assignments	Lectures, practical assignments and seminars
Assessment	Examination	Examination and project work	Examination and project work
Associated activity	The practical assignments need to be related to the work on subject knowledge and user behaviour	The practical assignments and project work need to be related to the work on subject knowledge and user behaviour	The project work needs to be related to the work on subject knowledge and user behaviour. The project should involve research into the information needs of a specific group

CONSOLIDATION	Skills	4/2/1.1

Inter-personal communication

	Basic	Intermediate	Advanced
Aim and objectives	To develop basic inter-personal communication skills	To develop the inter-personal skills required to deal successfully with colleagues, clients and customers	To develop a high level of inter-personal communication skills, including negotiation skills and the ability to make public presentations
Learning outcomes	Students should: • Be able to communicate effectively with colleagues and users of the service	Students should: • Be able to communicate effectively with others • Be able to recognise the different approaches required when dealing with different types of people	Students should: • Understand the theory and practice of inter-personal communication • Be able to communicate effectively with a range of different types of people • Be able to negotiate effectively • Be confident about making presentations to a range of different audiences
Teaching methods	Lectures and practical sessions	Lectures, seminars and practical sessions	Lecture, seminars s and practical sessions
Assessment	Practical exercises	Practical exercises	Practical exercises
Associated activity			

CONSOLIDATION	Skills		4/2/1.2
Written communication			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop basic writing skills	To develop the skills required to write clear and concise reports	To develop the skills required to write, design and evaluate a range of printed and electronic documents and to understand the factors that affect the design of documents
Learning outcomes	Students should: • Be able to write clearly and concisely	Students should: • Be able to analyse and synthesise information • Be able to write clearly and concisely • Understand the requirements of different audiences	Students should: • Be able to analyse and synthesise complex information • Be able to write clearly and concisely for different audiences • Understand the requirements of different media
Teaching methods	Lectures, workshops and practical assignments	Lectures, workshops and practical assignments	Lectures, workshops, analysis of different documents and practical assignments
Assessment	Practical exercises	Practical exercises	Practical exercises and examination
Associated activity	Should be planned in conjunction with the module on information design (1/2/2)	Should be planned in conjunction with the module on information design (1/2/2)	Should be planned in conjunction with the module on information design (1/2/2)

CONSOLIDATION	Skills	4/2/2.1
Project management		

	Basic	Intermediate	Advanced
Aim and objectives	To develop an understanding of the need for project management	To develop an understanding of the basic principles and practice of project management	To develop the ability to manage a variety of different types of project efficiently and effectively
Learning outcomes	Students should: • Understand the role and importance of project management	Students should: • Understand the principles and practices of project management • Be able to manage small, relatively simple projects	Students should: • Understand the different approaches towards project management • Be familiar with different types of project management software • Be able to manage a range of different types of project, including complex ones
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination	Examination and practical assignment	Examination and practical assignment
Associated activity	Should be planned in conjunction with the module on financial management (4/2/2.2)	Should be planned in conjunction with the module on financial management (4/2/2.2)	Should be planned in conjunction with the module on financial management (4/2/2.2)

CONSOLIDATION	Skills		4/2/2.2
Financial management			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop an understanding of the need for financial management	To develop basic skills in aspects of financial management	To develop a full range of financial management skills
Learning outcomes	Students should: • Appreciate the need for financial management • Understand the basic principles of financial management	Students should: • Understand how to cost a project, draw up a budget and monitor expenditure • Be able to use spreadsheets	Students should: • Be able to cost projects, prepare budgets, monitor expenditure, forecast cash-flows and allow for cost increases • Be familiar with spreadsheets • Understand basic accounting principles
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination	Examination and practical assignment	Examination and practical assignment
Associated activity	Should be planned in conjunction with the module on project management (4/2/2.1)	Should be planned in conjunction with the module on project management (4/2/2.1)	Should be planned in conjunction with the module on project management (4/2/2.1)

CONSOLIDATION	Skills	4/2/3

Marketing

	Basic	Intermediate	Advanced
Aim and objectives	To develop a basic understanding of the need for and principles of marketing	To develop an understanding of the principles and practices of marketing	To develop the ability to apply the principles and practices of marketing to information services
Learning outcomes	Students should: • Understand the need for and the basic principles of marketing	Students should: • Understand the theory and practices of marketing • Be able to draw up a marketing plan for an information service	Students should: • Understand the theory and practice of marketing • Be able to draw up and apply a marketing plan for an information service • Be able to carry out basic market research and apply the findings
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination	Examination and practical assignments	Examination and practical assignments
Associated activity			

CONSOLIDATION	Skills		4/2/4.1
Information skills: searching			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop basic information searching skills	To develop the ability to search for information using a range of different sources	To develop high-level searching skills using a variety of different print and electronic media
Learning outcomes	Students should: • Be able to undertake successfully basic information searches	Students should: • Be able to identify appropriate information sources • Be able to devise appropriate search strategies • Be able to search for information in a range of different sources and media	Students should: • Understand the theory of information retrieval • Be able to identify the relative strengths and weaknesses of different sources of information • Be able to devise appropriate search strategies • Be able to search for information in a range of different sources and media
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	Should be planned in conjunction with the module on IT (4/2/6)	Should be planned in conjunction with the module on IT(4/2/6)	Should be planned in conjunction with the module on IT (4/2/6)

CONSOLIDATION		Skills	4/2/4.2
Information skills: Abstracing			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a basic skill in summarising documents	To develop the ability to prepare a range of different abstracts and summaries	To develop high-level skills in abstracting and summarising a variety of different types of document, recognising the needs of different audiences
Learning outcomes	Students should: • Be able to produce brief summaries of simple documents	Students should: • Understand the difference between an abstract and a summary • Be able to abstract and summarise relatively complex documents	Students should: • Understand the theory and practice of abstracting • Be able to abstract and summarise a range of complex documents • Be able to produce abstracts that are appropriate for different audiences
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity			

CONSOLIDATION	Skills		4/2/5
Research skills			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop the ability to assist with research projects	To develop a basic understanding of the research process and the methods that can be used	To develop a high-level understanding of the research process, including the ability to design projects, select and apply the most appropriate methods, analyse the data collected and write up the results
Learning outcomes	Students should: • Be able to assist the research process by handling research data in a systematic and accurate way	Students should: • Understand the basic theory and practice of research • Be familiar with a number of quantitative and qualitative methods • Be able to undertake a small research project with minimum supervision	Students should: • Be thoroughly familiar with the theory and practice of research • Be able to design research projects. • Be able to evaluate and use a range of different research methods • Be able to analyse quantitative and qualitative data • Be able to draw appropriate conclusions and produce concise reports for different audiences
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures, practical exercises and a research project
Assessment	Practical assignments	Practical assignments	The research project
Associated activity			

CONSOLIDATION	Skills	4/2/6
Information technology skills		

	Basic	Intermediate	Advanced
Aim and objectives	To develop a basic familiarity with information technology	To develop familiarity with a range of different types of hardware and software and to appreciate the main features of information and telecommunications policy	To develop a high-level of information technology skills, including the ability to make sophisticated use of a range of software packages. To understand the likely impact of the main developments in information and telecommunications policy
Learning outcomes	Students should: • Be able to use a personal computer for word processing and Internet searching	Students should: • Be able to use a personal computer for word processing, spreadsheets and databases • Be able to conduct computer searches using online, CD-Rom and the Internet • Be familiar with a range of peripherals such as printers and scanners	Students should: • Be able to use with ease a range of applications packages, including word processing, spreadsheets and databases • Be able to search for information using a range of different media, including the Internet • Be able to use desk-top publishing software • Be able to evaluate different types of equipment and software
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity	Should be planned in conjunction with the module on searching (4/2/4.1)	Should be planned in conjunction with the module on searching (4/2/4.1)	Should be planned in conjunction with the module on searching (4/2/4.1)

CONSOLIDATION	Tools		4/3/1
Information sources			
	Basic	**Intermediate**	**Advanced**
Aim and objectives	To develop a familiarity with a range of printed and electronic information sources	To develop an understanding of the strengths and weaknesses of a wide range of printed and electronic information sources	To develop a familiarity with a wide range of printed and electronic information sources and the ability to evaluate them
Learning outcomes	Students should: • Be able to use most of the common information sources whether printed or electronic	Students should: • Be familiar with a wide range of information sources • Be able to evaluate their strengths and weaknesses	Students should: • Be familiar with a wide range of information sources • Be able to evaluate their strengths and weaknesses • Be able easily to locate information when it is required
Teaching methods	Lectures and practical exercises	Lectures and practical exercises	Lectures and practical exercises
Assessment	Examination and practical assignments	Examination and practical assignments	Examination and practical assignments
Associated activity			

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